

New records of the rare Escher's Blue, *Polyommatus escheri* (Lepidoptera: Lycaenidae), from the Republic of Macedonia

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Abstract. *Polyommatus escheri* (Hübner, 1823) was known only from a single site in Republic of Macedonia. During field surveys in June 2008 the species was discovered at two new sites. In both cases the habitat is characterised by stretches of barren sandy ground where the larval food plant *Astragalus monspesullanus* (Bernh.) grows abundantly. The habitat is at least partially anthropogenic and mainly consists of 100 to 300 m long road verges. Given the limited habitat available at all three known sites and potential threats due to isolation, natural succession and anthropogenic pressure, the species should be considered highly threatened in Republic of Macedonia.

Rezime. Ešeroviot sinec beše poznat samo od eden lokalitet za Republika Makedonija. Za vreme na terenskite istraživanja vo juni 2008 vidot beše otkrien na ušte dva novi lokaliteti. Vo site tri slučai staništeto se karakterizira so ogolena pesokлива podloga so značitelna abundancija na *Astragalus monspesullanus* (Bernh.), rastenie domakin za ovoj vid. Staništata na site lokaliteti se odlikuvat so delumna antropogenost i glavno se sostojat od pojasi od po 100-300 m kraj samiot pat. Zaradi ograničenosta na staništata i potencijalnata opasnost kako rezultat na prirodna sukcesija i antropogeniot impakt, vidot treba da se smeta za visoko zagrozen vo Makedonija.

Samenvatting. Nieuwe gegevens over *Polyommatus escheri* in de Republiek Macedonië. *Polyommatus escheri* (Hübner, 1823) was slechts van één lokaliteit in de Republiek Macedonië bekend. Tijdens veldonderzoek in juli 2008 werd de soort in twee nieuwe vindplaatsen aangetroffen. In beide gevallen gaat het om een stuk zandgrond waar de voedselplant van de rups, *Astragalus monspessulanus* (Bernh.) overvloedig groeit. De vindplaatsen zijn op zijn minst gedeeltelijk van anthropogene oorsprong en bestaan hoofdzakelijk uit wegboorden van 110 à 300 m lang. Gezien de kleine oppervlakte van de drie vindplaatsen en de mogelijke dreiging van isolering en anthropogene druk, moet de soort in de Republiek Macedonië beschouwd worden als zeer bedreigd.

Résumé. Nouvelles observations de *Polyommatus escheri* en République de Macédoine. *Polyommatus escheri* (Hübner, 1823) est connu seulement d'une localité en République de Macédoine. Pendant des recherches en juillet 2008 cette espèce fut trouvée dans deux nouvelles localités. Toutes les deux des endroits sablonneux où la plante nourricière de la chenille, *Astragalus monspessulanus* (Bernh.), croît abondamment. Ces localités sont, au moins en partie, d'origine anthropique et consistent surtout en bords de route de 110 à 300 m de long. Vu la superficie négligeable des trois localités connues et la pression humaine, *P. escheri* doit être considéré comme extrêmement vulnérable en République de Macédoine.

Key words. *Polyommatus escheri* – Distribution – Faunistics – Republic of Macedonia.

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Introduction

The Escher's Blue, *Polyommatus escheri* (Hübner, 1823), is a typical Mediterranean species distributed from Spain to NW Greece with isolated populations in the southern Alps and the Atlas Mountains in Morocco (Pro Natura - SBN 1994, Tolman & Lewington 1997, Kudrna 2002). In the Balkan

Peninsula it is present along the Adriatic coast, excluding Montenegro (Sijarić 1984), most parts of Greece (Pamperis 1997), SW part of Bulgaria (Abadijev 2001) and few isolated populations in southern and eastern Serbia (Jakšić 1988, Swaay *et al.* 2007). Given the relatively wide distribution of the species in the region, especially northern Greece, it is hard to explain why it was found only at a single site in Macedonia despite concerted effort during surveys for the distribution atlas (Schaidler & Jakšić 1989). The species is first mentioned for Macedonia by Thurner (1964) who does not provide exact locality for the species, other than near the village Drenovo. This agrees well with the site in Raec Gorge about 3 km NW from Drenovo, where the species was collected by Jakšić (Schaidler & Jakšić 1989).

The species is a habitat specialist limited by the presence of larval food plant growing mainly in pioneer associations (Pro Natura – SBN 1994, Verovnik 2004). Escher's Blue is monophagous utilizing a few species of *Astragalus*, principally *A. monspesullanus*. This plant grows in open, sandy places, open canopy forests, and forest edges. As such habitats are not rare in Macedonia the species was expected to be found at new sites.

Field survey

During 31.5.–6.6.2008 a joint survey was undertaken by the authors visiting many less studied areas in Macedonia for basic faunistic research. On 4.6.2008 the Raec gorge was visited and the larval food plant was present along a 50 m long stretch of an abandoned road. Due to unfavorable weather conditions no adults were observed. The habitat is very limited at the site with only few *A. monspesullanus* present.

The second site was discovered in the middle part of the Treska valley on 6.6.2008. The larval food plant was present in a small side valley just south of the beginning of the artificial lake Kozjak, around 3 km south of the village Tazhevo and with NE exposition. It was growing along 300 m of a road verge with some plants present in low density also on the steep slopes above it. Butterflies of both sexes were completely fresh and present along the whole stretch of the suitable habitat. In a single count approximately 15 males and 4 females were seen. The site was rich in butterflies with *Carcharodus lavatherae* (Esper, 1783), *Euchloe penia* (Freyer, 1851), *Iolana iolas* (Ochsenheimer, 1816), and *Scolitantides orion* (Pallas, 1771) being the most prominent examples. The exact position of the site is 41°41,838 N and 21°13,754 E at altitude of 485 m.

Encouraged by the new finding the first author surveyed the literature for further records of *A. monspesullanus* in Macedonia. Surprisingly the species is known only from 3 sites (Micevski 2001), one of which is in close proximity to the newly recorded population. The only further promising site was vicinity of Majdan (Kožuf Mts.) which was visited on 14.6.2008. The locality was similar

to the previous two, along the unsurfaced road, with SE exposition and near the Bistra river.

Knowing the habitat, the site was easy to spot and both larval food plants and adults were observed there. The site is situated along 300 m of road, few km before the village Majdan. Here the adults were similarly abundant as in the Treska valley. Further interesting records from this locality are *Apatura ilia* (Denis & Schiffermüller, 1775), *Euphydryas aurinia* (Rottemburg, 1775), *Melitaea arduinna* (Esper, 1783) and *Erebia medusa* (Fabricius, 1787). The exact position of the site is 41°09,980 N and 21°56,810 E at altitude of 740 m. Despite intensive search no further sites with larval food plant were found in the vicinity.

Subspecific status

The specimens of *Polyommatus escheri* from Macedonia clearly belong to the subspecies *dalmatica* (Speyer, 1882). The subspecies is characterized by the broad marginal black border and bright blue coloration in the males.

Discussion

The new discoveries of Escher's Blue give hope that with further, even more focused field work, the species could be discovered at new sites. This is especially true for the entire Treska valley where numerous small side valleys and steep slopes could be the potential main distribution area of the species in Macedonia. However, given the limited known range of both the larval food plant *A. monspesullanus* (Micevski 2001) and *P. escheri* in Macedonia and their ecological specialization the species should be considered highly threatened. If we presume that all three sites where *P. escheri* is present are entirely isolated, the long term survivor of these populations even without habitat changes is unlikely. Both overgrowing due to succession and anthropogenic pressure (destruction of road verges) could be potentially deleterious to these small and isolated populations. Further research should focus on Treska valley where despite large scale inundation the habitats for the species could still be present and could provide a wider and thus less sensitive network of habitat patches.

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Literature

- Abadjiev, S. P. 2001. *An atlas of the distribution of the butterflies in Bulgaria*. — Pensoft Publishers, Sofia, 335 pp.
- Jakšić, P. 1988. Provisional distribution maps of the butterflies of Yugoslavia. — *Acta Entomologica Jugoslavica* – editiones separata **1**: 1–214.
- Kudrna, O. 2002. The Distribution Atlas of European Butterflies. — *Oedippus* **20**: 1–344.
- Micevski, K. 2001. The Flora of the Republic of Macedonia. — *Macedonian Academy of Sciences* **5**: 1121–1430.

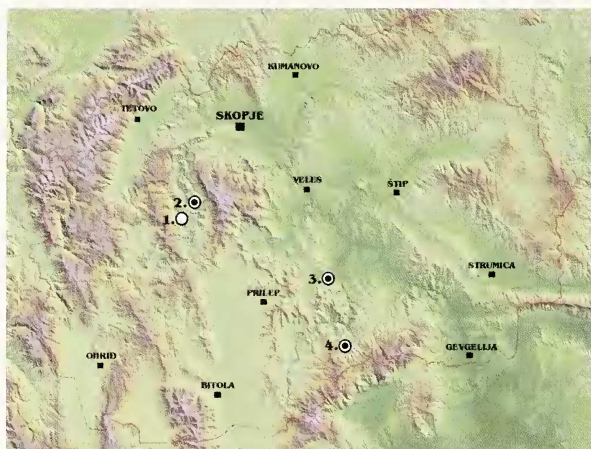


Fig 1. Localities of *Polyommatus escheri* (Hübner, 1823) and its food plant *A. monspesullanus* (Bernh.) in the Republic of Macedonia. The empty spot denotes the presence of the food plant only. 1. – Makedonski Brod, between Samokov and Kalugerec villages (Micevski 2001); 2. – Treska valley, small side valley at the southern edge of the artificial lake Kozjak, 3 km south of the village Tazhevo; 3. – Kavadarci, Raec gorge 3 km NW from Drenovo (Thurner 1964, Schaider & Jakšić 1989); 4. – Kožuf Mts., along the road in Bistra river valley before the village Majdan.



Figs. 2–5. *Polyommatus escheri* (Hübner, 1823). 2.– Male upperside, Tazhevo near Kozjak Lake; 3.– Female underside, idem; 4.– Larval foodplant, *Astragalus monspessulanus*, idem; 5.– Locality near Majdan village in Kožuf Mts. where adults of *P. escheri* were observed along the road side.

- Pamperis, L. N. 1997. *The Butterflies of Greece*. — A. Bastas-D. Plessas Graphic Arts S.A., Athens, XII + 559 pp.
- Pro Natura – Schweizerischer Bund für Naturschutz (SBN), 1994. *Schmetterlinge und ihre Lebensräume, Arten-Gefährdung-Schutz*. Vol 1. — Schweizerischer Bund für Naturschutz, Basel, 516 pp.
- Schaider, P. & Jakšić, P. 1989. *Die Tagfalter von Jugoslawisch Mazedonien* (Rhopalocera und Hesperidae). — Selbstverlag Paul Scheider, München, 199 pp.
- Sijarić, R. 1984. The investigation of Rhopalocera (Lepidoptera in Montenegro). — *The Montenegrin Academy of Sciences and Arts Glasnik of the section of natural sciences* 4: 163–175.
- Swaay C. van, Jakšić P. & Đurić M. 2007. Notes on some summer butterflies (Lepidoptera: Hesperioidea & Papilionoidea) of Eastern Serbia. — *Acta entomologica serbica* 12 : 1–10.
- Turner, J. 1964. Die Lepidopterenfauna jugoslawisch Mazedoniens. I. Rhopalocera, Grypocera und Noctuidae. — *Posebno Izdanie. Prirodonaučni Muzej Skopje* 1: 1–158.
- Tolman, T. & Lewington, R. 1997. *Collins field guide. Butterflies of Britain and Europe*. — Harper Collins Publishers, London, 320 pp.
- Verovnik, R. 2004. Distribution and conservation status of *Polyommatus escheri* (Huebner, 1823) in Slovenia (Lepidoptera: Lycaenidae). — *Linneana Belgica* 19: 253–257.
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